

**WHAT IS CLAIMED:**

1. A method for operating a user communication device, comprising the steps of:

5           providing a digital representation of an audible signal in each of a plurality of memory locations of a memory of the user communication device;

          receiving a call signal at the user communication device;

10           in response to receiving the call signal at the user communication device, selecting one of the plurality of memory locations; and

          generating the audible signal represented by the digital representation provided in the memory location  
15           selected in the selecting step.

2. A method as set forth in Claim 1, wherein the user communication device comprises at least one of a telephone and a radiotelephone.

3. A method as set forth in Claim 1, wherein the  
20           user communication device is coupled to a network having a

storage device, and the providing step comprises the steps  
of:

receiving, at the user communication device, each  
digital representation from the storage device; and

5 storing each received digital representation in a  
respective one of the memory locations.

4. A method as set forth in Claim 1, wherein the  
providing step comprises the steps of:

applying at least one audible signal to an input  
10 of a user input-interface of the user communication device,  
and outputting at least one corresponding analog signal  
within the device;

in response to the inputting step, converting the  
at least one analog signal to at least one corresponding  
15 digital representation of that at least one audible signal;  
and

storing the at least one digital representation in  
the memory of the user communication device.

5. A method as set forth in Claim 1, further  
20 comprising a step of determining at least one of a date and

a time at which the call signal is received in the user communication device, and wherein the step of selecting one of the plurality of memory locations is performed based on a result of the determining step.

5           6. A method as set forth in Claim 1, wherein the selecting step is performed by randomly selecting one of the plurality of memory locations.

10           7. A method as set forth in Claim 1, further comprising a step of operating an input-user interface of the user communication device to input information into the user communication device specifying that one of the plurality of memory locations be selected, and wherein the selecting step is performed by selecting the memory location specified by the inputted information.

15           8. A method as set forth in Claim 1, wherein the selecting step is performed based on predetermined information included in the received call signal.

20           9. A method as set forth in Claim 1, wherein the generating step is performed by generating the audible signal at predetermined time intervals.

10. A method as set forth in Claim 1, further

comprising the steps of:

determining at least one acoustic characteristic  
of at least one of the audible signals, based on at least  
one digital representation representing that at least one  
5 audible signal;

comparing the at least one acoustic characteristic  
determined in the determining step to at least one  
predetermined acoustic characteristic; and

scaling the at least one digital representation  
10 based on a result of the comparing step, to normalize the at  
least one acoustic characteristic of the at least one  
audible signal.

11. A method for operating a user communication  
device, comprising the steps of:

15 providing a digital representation of an audible  
signal, in a memory of the user communication device;

entering information through an interface of the  
user communication device, specifying that a call be placed  
from the user communication device to a destination  
20 communication device; and

in response to the entering step, forwarding a call signal that includes the digital representation of the audible signal, towards the destination communication device, through an external interface.

5           12. A method as set forth in Claim 11, wherein the user communication device comprises at least one of a telephone and a radiotelephone.

13. A method as set forth in Claim 11, wherein the providing step comprises the steps of:

10           applying the audible signal to the interface of the user communication device, and producing a corresponding analog signal within the device;

          converting the analog signal to the digital representation; and

15           storing the digital representation in the memory of the user communication device.

14. A user communication device, comprising:

          a memory including a plurality of memory locations, each storing a digital representation of a

corresponding audible signal;

a communication interface, coupled to an external interface, for receiving a call signal forwarded from a source communication device through the external interface;

5 an output-user interface having an input, said output-user interface for outputting an audible signal in response to an analog signal being applied to that input;

10 a converter having an input and an output, the output being coupled to the input of said output-user interface, said converter for converting digital information applied to the input thereof to a corresponding analog signal; and

15 a controller coupled to said memory, said communication interface, and the input of said converter, said controller being responsive to receiving the call signal from the communication interface for selecting one of the plurality of memory locations, and for applying the digital representation stored in the selected memory location to the input of said converter, to cause said  
20 converter to output a corresponding analog signal to the input of said output-user interface, and thereby cause the

output-user interface to output the corresponding audible  
signal.

15. A user communication device as set forth in  
Claim 14, wherein said user communication device comprises  
5 at least one of a telephone and a radiotelephone.

16. A user communication device as set forth in  
Claim 14, wherein said controller is in communication with  
at least one communication network through the external  
interface and said communication interface, the at least one  
10 communication network has a storage device for storing each  
digital representation, and wherein said controller is  
responsive to receiving each individual digital  
representation from the storage device of the at least one  
network for storing that digital representation in said  
15 memory.

17. A user communication device as set forth in  
Claim 14, further comprising:

an input interface having an input, and also  
having an output coupled to said controller, said input  
20 interface being responsive to each individual audible signal  
being applied to that input for outputting a corresponding

analog signal in said user communication device; and

5 a further converter interposed between an output of said input interface and an input of said controller, said further converter being responsive to receiving each individual analog signal for producing the corresponding digital representation, and wherein said controller is responsive to each individual produced digital representation for storing the produced digital representation in said memory.

10 18. A user communication device as set forth in Claim 14, wherein said controller selects one of the plurality of memory locations based on predetermined information included in the call signal.

15 19. A user communication device as set forth in Claim 14, wherein said controller is responsive to the call signal being received for determining at least one of a date and a time at which the call signal is received in the user communication device, and selects one of the plurality of memory locations based on the determined at least one of the date and time.

20 20. A user communication device as set forth in



Claim 14, wherein said controller selects one of the plurality of memory locations at random.

21. A user communication device as set forth in Claim 14, wherein said user communication device further  
5 comprises an input user interface for inputting, into said controller, information specifying that one of the plurality of memory locations be selected, and said controller is responsive to the call signal being received for selecting the memory location specified by the information inputted  
10 through said input user interface.

22. A user communication device as set forth in Claim 14, wherein said controller applies the retrieved digital representation to the input of said converter at predetermined time intervals, to cause the audible signal to  
15 be output at those predetermined time intervals.

23. A user communication device as set forth in Claim 14, wherein said controller is operable for (a) determining at least one acoustic characteristic of at least one of the audible signals, based on the corresponding  
20 digital representation provided in said memory, (b) comparing the at least one acoustic characteristic to at least one predetermined acoustic characteristic, and (c)

scaling the corresponding digital representation based on a result of the comparison, to normalize the at least one acoustic characteristic.

24. A user communication device, comprising:

5 a memory storing a digital representation of an audible signal;

a communication interface coupled to an external interface;

an input-user interface; and

10 a controller coupled to said memory, said communication interface, and said input-user interface, said controller being responsive to receiving from said input-user interface information specifying that a call be placed to a destination communication device for retrieving the  
15 digital representation from said memory and forwarding a call signal that includes the retrieved digital representation through said communication interface towards the destination communication device.

25. A user communication device as set forth in  
20 Claim 24, wherein the user communication device comprises at

least one of a telephone and a radiotelephone.

26. A user communication device as set forth in Claim 24, further comprising:

a further input-user interface having an input,  
5 and also having an output coupled to said controller, said further input-user interface being responsive to the audible signal being applied to that input for outputting a corresponding analog signal in said device;

10 a converter interposed between said further input-user interface and said controller, said converter for converting the analog signal to the digital representation, and wherein said controller is responsive to receiving the digital representation from said converter for storing the digital representation in said memory.

15 27. A program product which comprises program code for executing a method for operating a user communication device, the method comprising the steps of:

providing a digital representation of an audible signal in each of a plurality of memory locations of a  
20 memory of the user communication device;

receiving a call signal at the user communication device;

in response to receiving the call signal at the user communication device, selecting one of the plurality of  
5 memory locations; and

generating the audible signal represented by the digital representation provided in the memory location selected in the selecting step.

28. A program product as set forth in Claim 27,  
10 wherein the user communication device is in communication with a network having a storage device, and the providing step comprises the steps of:

receiving, at the user communication device, each digital representation from the storage device; and

15 storing each received digital representation in a respective one of the memory locations.

29. A program product as set forth in Claim 27, wherein the providing step comprises the steps of:

producing analog signals within the user  
20 communication device in response to audible signals being

applied to an input of a user input-interface of the device,  
the analog signals representing the audible signals;

in response to the analog signals being produced,  
converting the analog signals to corresponding digital  
5 representations; and

storing the digital representations in respective  
ones of the memory locations of the memory.

30. A program product as set forth in Claim 27,  
wherein the step of selecting one of the plurality of memory  
10 locations is performed based on predetermined information  
included in the received call signal.

31. A program product as set forth in Claim 27,  
further comprising a step of determining at least one of a  
date and a time at which the call signal is received in the  
15 user communication device, and wherein the step of selecting  
one of the plurality of memory locations is performed based  
on a result of the determining step.

32. A program product as set forth in Claim 27,  
wherein the selecting step is performed by randomly  
20 selecting one of the plurality of memory locations.

33. A program product as set forth in Claim 27,  
further comprising a step of entering, through an input-user  
interface of the user communication device, information  
specifying that one of the plurality of memory locations be  
5 selected, and wherein the selecting step is performed by  
selecting the memory location specified by the inputted  
information.

34. A program product as set forth in Claim 27,  
wherein the generating step is performed by generating the  
10 audible signal at predetermined time intervals.

35. A program product as set forth in Claim 27,  
wherein the method further comprises the steps of:

determining at least one acoustic characteristic  
of at least one of the audible signals, based on at least  
15 one of the provided digital representations;

comparing the at least one acoustic characteristic  
determined in the determining step to at least one  
predetermined acoustic characteristic; and

scaling the at least one digital representation  
20 based on a result of the comparing step, to normalize the at  
least one acoustic characteristic of the at least one

audible signal.

36. A program product comprising program code for executing a method for operating a user communication device, the method comprising the steps of:

5           providing a digital representation of an audible signal, in a memory of the user communication device;

          entering information through an interface of the user communication device, specifying that a call be placed from the user communication device to a destination  
10           communication device; and

          in response to the entering step, forwarding a call signal that includes the digital representation towards the destination communication device, through an external interface.

15           37. A program product as set forth in Claim 36, wherein the providing step comprises the steps of:

          generating an analog signal in the user communication device in response to the audible signal being applied to the interface, the analog signal representing the  
20           audible signal;

converting the analog signal to the digital  
representation of the audible signal; and

storing the digital representation in the memory  
of the user communication device.

5           38. A method for operating a communication system  
that comprises a plurality of user communication devices,  
the method comprising the steps of:

providing a digital representation of an audible  
signal in each of a plurality of memory locations of a  
10 memory of a first one of the plurality of user communication  
devices;

forwarding a call signal from a second one of the  
user communication devices towards the first user  
communication device; and

15           in response to the call signal being received at  
the first user communication device, selecting one of the  
plurality of memory locations; and

generating the audible signal represented by the  
digital representation provided in the memory location  
20 selected in the selecting step.



39. A method as set forth in Claim 38, wherein each of the user communication devices comprises one of a telephone, a radiotelephone, and an information appliance.

40. A method as set forth in Claim 38, wherein  
5 the providing step comprises the steps of:

applying audible signals to an input of a user input-interface of the first user communication device, and producing corresponding analog signals in that device;

10 in response to the inputting step, converting each individual analog signal to a corresponding one of the digital representations; and

storing each individual digital representation in a respective one of the memory locations of the memory of the first user communication device.

15 41. A method as set forth in Claim 38, wherein the step of selecting one of the plurality of memory locations is performed based on predetermined information included in the received call signal.

20 42. A method as set forth in Claim 38, further comprising the step of determining at least one of a date

and a time at which the call signal is received at the first user communication device, and wherein the step of selecting one of the plurality of memory locations is performed based on a result of the determining step.

5           43. A method as set forth in Claim 38, wherein the selecting step is performed by randomly selecting one of the plurality of memory locations.

10           44. A method as set forth in Claim 38, further comprising a step of operating an input-user interface of the first user communication device to input information into that device specifying that one of the plurality of memory locations be selected, and wherein the selecting step is performed by selecting the memory location specified by the inputted information.

15           45. A method as set forth in Claim 38, wherein the generating step is performed by generating the audible signal at predetermined time intervals.

20           46. A method as set forth in Claim 38, wherein the providing step includes a step of downloading each digital representation from the Internet, and into the memory of the first user communication device.

47. A method as set forth in Claim 38, wherein  
the communication system also comprises at least one  
communication network having a storage device storing each  
digital representation, the first and second user  
5 communication devices are communicatively coupled to the at  
least one communication network, and the providing step  
comprises the steps of:

providing each digital representation from the  
storage device of the at least one communication network to  
10 the first user communication device; and

storing each digital representations provided to  
the first user communication device in a respective one of  
the memory locations of the memory of the first user  
communication device.

15 48. A method as set forth in Claim 47, wherein  
the plurality of user communication devices are  
communicatively coupled to the at least one communication  
network, and wherein the method further comprises the steps  
of:

20 providing each digital representation in a memory  
of one of the user communication devices besides the first

user communication device;

communicating each digital representation from the memory of the one user communication device to the at least one network; and

5 storing each digital representation in the storage device of the at least one network, prior to providing each digital representation from the storage device to the first user communication device.

49. A method as set forth in Claim 48, further  
10 comprising the step of communicating a request for each digital representation from one of the first and second user communication devices to the at least one communication network, and wherein the step of providing each digital representation from the storage device to the first user  
15 communication device is performed in response to the request being received in the at least one communication network.

50. A method as set forth in Claim 49, wherein the step of communicating the request is performed a plurality of times at respective predetermined time  
20 intervals.

51. A method as set forth in Claim 50, wherein

the storage device includes a plurality of memory locations, each storing a respective digital representation of a corresponding audible signal, and wherein the providing step comprises the steps of:

5           selecting at least one of the plurality of memory locations of the storage device; and

          storing the digital representation from the at least one memory location selected in that selecting step to the memory of the first user communication device.

10           52. A method as set forth in Claim 51, further comprising the step of communicating information specifying that the at least one memory location of the storage device be selected, from the first user communication device to the at least one communication network, and wherein the step of  
15           selecting the at least one memory location of the storage device is performed in response to that information being received in the at least one communication network.

          53. A method for operating a communication system comprising a plurality of user communication devices, the  
20           method comprising the steps of:

          initiating a call at a first one of the user

communication devices, for being placed to a second one of  
the user communication devices;

inserting a digital representation of an audible  
signal into a call signal used for placing the call;

5 forwarding the call signal towards the second user  
communication device; and

in response to receiving the call signal at the  
second user communication device, generating the audible  
signal based on the digital representation included in the  
10 call signal.

54. A method as set forth in Claim 53, wherein  
each of the user communication devices comprises one of a  
telephone, a radiotelephone, and a user information  
appliance.

15 55. A method as set forth in Claim 53, further  
comprising the steps of:

applying the audible signal to an input of a user  
interface of the first user communication device, and  
generating a corresponding analog signal in the first user  
20 communication device; and

converting the analog signal to the digital  
representation,

wherein the inserting step is performed by  
inserting that digital representation in the call signal,  
5 within the user communication device.

56. A method as set forth in Claim 55, further  
comprising the steps of:

determining at least one acoustic characteristic  
of the audible signal, based on the digital representation;

10 comparing the at least one acoustic characteristic  
determined in the determining step to at least one  
predetermined acoustic characteristic; and

scaling the digital representation based on a  
result of the comparing step, to normalize the at least one  
15 acoustic characteristic of the audible signal.

57. A method as set forth in Claim 53, wherein  
the call signal includes predetermined information, and  
further comprising the step of determining whether the  
predetermined information included in the call signal  
20 corresponds to information stored in a memory of the second

user communication device, in response to the call signal  
being received at the second user communication device, and  
wherein the generating step is performed in response to  
determining that the predetermined information does  
5 correspond to the information stored in the memory of the  
second user communication device.

58. A method as set forth in Claim 53, wherein  
the communication system also comprises at least one  
communication network having a storage device storing the  
10 digital representation of the audible signal, the first and  
second user communication devices are communicatively  
coupled to the at least one communication network, and the  
method further comprises the steps of:

prior to the inserting step, transmitting the call  
15 signal from the first user communication device, through at  
least a portion of the at least one communication network;  
and

in response to the call signal being received in  
the at least one communication network, retrieving the  
20 digital representation from the storage device,

wherein the inserting step is performed by



inserting the digital representation retrieved from the  
storage device in the call signal.

59. A method as set forth in Claim 58, wherein  
the at least one communication network includes at least a  
5 portion of the Internet.

60. A communication system, comprising:

a first user communication device comprising a  
first communication interface coupled to an external  
interface, and a controller coupled to the first  
10 communication interface, the controller being operable for  
forwarding a call signal through the first communication  
interface; and

a second user communication device comprising a  
memory, a second communication interface coupled to the  
15 external interface, and an audible signal generator portion  
coupled to the memory and the second communication  
interface, wherein the memory has a plurality of memory  
locations, each of which stores a digital representation of  
a corresponding audible signal, and the audible signal  
20 generator portion is responsive to the call signal being  
received from the first user communication device through

the second communication interface for selecting one of the memory locations and for generating the audible signal represented by the digital representation stored in the selected memory location.

5           61. A communication system as set forth in Claim 60, wherein each of the first and second user communication devices comprises one of a telephone, a radiotelephone, and an information appliance.

10           62. A communication system as set forth in Claim 60, wherein the audible signal generator portion selects one of the memory locations based on predetermined information included in the received call signal.

15           63. A communication system as set forth in Claim 60, wherein the audible signal generator portion is responsive to the call signal being received for determining at least one of a date and a time at which the call signal is received, and selects one of the plurality of memory locations based on a result of that determination.

20           64. A communication system as set forth in Claim 60, wherein the audible signal generator portion randomly selects one of the plurality of memory locations.

65. A communication system as set forth in Claim

60, wherein said second user communication device further comprises an input-user interface coupled to the audible signal generator portion, for inputting information into  
5 that device specifying that one of the plurality of memory locations be selected, and wherein the audible signal generator portion is responsive to the call signal being received for selecting the memory location specified by that inputted information.

10 66. A communication system as set forth in Claim

60, wherein the communication system also comprises at least one communication network coupled to the first and second user communication devices through the respective first and second communication interfaces, said at least one  
15 communication network comprises a message station and a storage device storing the digital representations of the audible signals, wherein at least one of the controller of said first user communication device and the audible signal generator portion of said second user communication device  
20 is operable for communicating a download request to the at least one network, and wherein the message station is responsive to receiving the download request for providing

the digital representations from the storage device to the second communication interface of the second user communication device, and wherein the audible signal generator portion of said second user communication device is responsive to receiving the digital representations from the second communication interface for storing the digital representations in respective ones of the memory locations in the memory.

67. A communication system as set forth in Claim 66, wherein the at least one of the controller and the audible signal generator portion communicates the download request a plurality of times at respective predetermined time intervals.

68. A communication system, comprising:

a first user communication device comprising a first communication interface, a memory, an input user interface, and a controller coupled to the first communication interface, the memory, and the input user interface, the memory storing a digital version of an audible signal, the controller being responsive to receiving from the input user interface information specifying that a call be placed from the first user communication device for

forwarding a call signal that includes the digital representation from the memory through an external interface coupled to the first communication interface; and

a second user communication device comprising a second communication interface coupled to the external interface, and an audible signal generator portion coupled to the second communication interface, wherein the audible signal generator portion is responsive to receiving the call signal from the second communication interface for generating the audible signal based on the digital representation included in the call signal.

69. A communication system as set forth in Claim 68, wherein each of the first and second user communication devices comprises one of a telephone, a radiotelephone, and a user information appliance.

70. A communication system as set forth in Claim 68, wherein the call signal includes predetermined information, the second user communication device also comprises a memory, and the audible signal generator portion is responsive to receiving the call signal for determining whether the predetermined information included in the call signal corresponds to information stored in the memory of

the second user communication device, and generates the  
audible signal in response to determining that the  
predetermined information does correspond to the information  
stored in the memory of the second user communication  
5 device.

71. A communication system, comprising:

a first user communication device, comprising a  
first communication interface, an input user interface, and  
a controller coupled to the first communication interface  
10 and the input user interface, the controller being  
responsive to receiving from the input user interface  
information specifying that a call be placed from the first  
user communication device, for forwarding a call signal  
through the first communication interface;

15 at least one communication network, having a  
second communication interface coupled to the first  
communication interface of said first user communication  
device, and also having a third communication interface,  
said at least one communication network comprising a message  
20 station and a storage device coupled to the message station,  
wherein the storage device stores a digital representation  
of at least one audible signal, and the message station is

responsive to receiving the call signal for (a) retrieving  
the digital representation from the storage device, (b)  
inserting the retrieved digital representation in the call  
signal, and (c) forwarding the call signal through the third  
5 communication interface; and

a second user communication device comprising a  
fourth communication interface coupled to the third  
communication interface of the at least one communication  
network, and also comprising an audible signal generator  
10 portion coupled to the fourth communication interface,  
wherein the audible signal generator portion is response to  
receiving the call signal for generating the audible signal  
based on the digital representation included in the call  
signal.

15 72. A communication system as set forth in Claim  
71, wherein the at least one communication network includes  
at least a portion of the Internet.

73. A method for operating a user communication  
device, comprising the steps of:

20 operating an interface of the communication device  
to enter into the device at least one identifier identifying

at least one respective calling source from which a call  
signal may be received;

operating the interface to enter into the user  
communication device at least one signal representing at  
5 least one corresponding user-perceptible alerting signal  
that is to be generated in response to a call being received  
from the at least one respective calling source; and

storing in a memory of the user communication  
device, the at least one identifier in association with the  
10 at least one signal.

74. A method as set forth in Claim 73, wherein  
the user-perceptible alerting signal includes an audible  
signal.

75. A method as set forth in Claim 73, further  
15 comprising a step of normalizing the entered at least one  
signal in accordance with predetermined criteria.

76. A method as set forth in Claim 73, wherein  
the at least one identifier comprises at least one of a  
telephone number, a pager number, an IP address, a domain  
20 name, and a public key certificate.



77. A method for operating a user communication device, comprising the steps of:

at the user communication device, receiving an incoming call signal from a calling source, the call signal including both an identifier which identifies the calling source, and information representing a user-perceptible alerting signal;

comparing the identifier included in the call signal with a plurality of identifiers stored in a memory of the user communication device to determine whether any of the compared identifiers correspond with one another; and

if it is determined that the identifier included in the call signal corresponds to any of the identifiers stored in the memory, generating the user-perceptible alerting signal represented by the information included in the call signal.

78. A method as set forth in Claim 77, wherein if it is determined that the identifier included in the received call signal does not correspond to any of the identifiers stored in the memory, a step is performed of generating a different user-perceptible alerting signal.

79. A method as set forth in Claim 77, wherein  
user-perceptible alerting signal includes an audible signal.

80. A user communication device, comprising:

a memory;

5 an interface; and

a controller coupled to said memory and said  
interface, said controller being responsive to receiving  
from said interface (a) at least one identifier identifying  
at least one respective calling source from which a call  
10 signal may be received, and (b) at least one signal  
representing at least one respective user-perceptible  
alerting signal that is to be generated in response to a  
call signal being received from the at least one respective  
calling source, for storing the entered at least one signal  
15 in association with the at least one identifier in said  
memory.

81. A user communication device, comprising:

a communication interface for receiving an  
incoming call signal from a calling source, the call signal  
20 including both an identifier which identifies the calling

source and information representing a user-perceptible  
alerting signal;

an output user-interface;

a memory storing a plurality of identifiers

5 identifying calling sources from which call signals may be  
received; and

a controller coupled to said communication  
interface, said output user-interface, and said memory, said  
controller being responsive to receiving the call signal  
10 from said communication interface for comparing the  
identifier included in the call signal with the plurality of  
identifiers stored in said memory to determine whether any  
of the compared identifiers correspond to one another, and,  
if it is determined that the identifier included in the call  
15 signal corresponds to any of the identifiers stored in the  
memory, for controlling said output user-interface for  
causing that output user-interface to generate the user-  
perceptible alerting signal represented by the information  
included in the call signal.

20 82. A user communication device as set forth in  
Claim 81, wherein said controller is responsive to

determining that the identifier included in the received  
call signal does not correspond to any of the identifiers  
stored in the memory, for controlling said output user-  
interface to cause that output interface to generate a  
5 different user-perceptible alerting signal.

83. A user communication device as set forth in  
Claim 81, wherein the output user-interface includes a  
speaker, and the user-perceptible alerting signal includes  
an audible signal.

10 84. A communication system, comprising:

a first user communication device comprising first  
communication interface means coupled to an external  
interface, and control means operable for forwarding a call  
signal through the first communication interface means; and

15 a second user communication device comprising  
storage means, second communication interface means coupled  
to the external interface, and alerting signal generator  
means coupled to the storage means and the second  
communication interface means, wherein the storage means  
20 includes a plurality of memory locations, each of which  
stores a digital representation of a corresponding user-

perceptible signal, and the alerting signal generator means is responsive to the call signal being received through the second communication interface means for selecting one of the memory locations and for generating the user-perceptible alerting signal represented by the digital representation stored in the selected one of the memory locations.

85. A user communication device, comprising:

storage means;

input means for inputting (a) identifiers identifying respective ones of a plurality of calling sources from which call signals may be received, and (b) signals representing respective ones of a plurality of user-perceptible alerting signals that are to be individually generated in response to calls being received from respective ones of the calling sources; and

control means coupled to said storage means and said input means, said controller being responsive to receiving from said input means at least one of the identifiers and at least one corresponding signal for storing the at least one signal in association with the at least one identifier in said storage means.

86. A user communication device, comprising:

communication interface means for receiving an incoming call signal from a calling source, the call signal including both an identifier which identifies the calling source and information representing a user-perceptible alerting signal;

output user-interface means;

a storage means storing a plurality of identifiers identifying calling sources from which call signals may be received; and

control means coupled to said communication interface means, said output user-interface means, and said storage means, said control means being responsive to receiving the call signal from said communication interface means for comparing the identifier included in the call signal with the plurality of identifiers stored in said storage means to determine whether any of the compared identifiers correspond to one another, and, if it is determined that the identifier included in the call signal corresponds to any of the identifiers stored in the storage means, for controlling said output user-interface means to

cause that output user-interface means to generate the user-perceptible alerting signal represented by the information included in the call signal.

87. A user communication device as set forth in  
5 Claim 86, wherein the output user-interface means includes a speaker, and the user-perceptible alerting signal includes an audible signal.

88. A method for operating a user communication device, comprising the steps of:

10 providing a plurality of categories of identifiers in a memory of the user communication device, each identifier identifying a calling source from which a call may be received;

15 providing a plurality of digital representations of corresponding user-perceptible alerting signals, in the memory of the user communication device, each digital representation corresponding to a particular one of the categories of identifiers;

20 receiving a call signal from one of the calling sources, the call signal including an identifier from one of

PATENT  
DOCKET NO. 00-4029

in response to receiving the call signal,  
generating the user-perceptible alerting signal represented  
by the digital representation corresponding to that category  
of identifiers.

Parameter	Value	Unit	Parameter	Value	Unit
Temperature	25.0	°C	Pressure	1.013	bar
Humidity	50.0	%	Wind speed	0.5	m/s
Light intensity	1000	μmol/m <sup>2</sup> /s	CO <sub>2</sub> concentration	400	ppm
Root length	10.0	cm	Stomatal conductance	0.1	mol/m <sup>2</sup> /s
Chlorophyll content	20.0	mg/g	Transpiration rate	0.01	mol/m <sup>2</sup> /s
Protein content	1.0	mg/g	Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s
Cell wall thickness	0.5	μm	Root diameter	0.5	mm
Stomatal density	100	mm <sup>-2</sup>	Leaf area	10.0	cm <sup>2</sup>
Chlorophyll fluorescence	0.8	—	Root surface area	10.0	cm <sup>2</sup>
Protein synthesis rate	0.1	mg/g/h	Stomatal aperture	5.0	μm
Cell wall elasticity	0.1	MPa	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Leaf senescence rate	0.1	g/d
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root senescence rate	0.1	g/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s	Stomatal aperture	5.0	μm
Transpiration rate	0.01	mol/m <sup>2</sup> /s	Transpiration efficiency	1.0	g/m <sup>2</sup> /h
Photosynthesis rate	0.02	μmol/m <sup>2</sup> /s	Root growth rate	0.1	cm/d
Stomatal conductance	0.1	mol/m <sup>2</sup> /s			